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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT	PAPER NUMBER
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1792

NOTIFICATION DATE	DELIVERY MODE
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09/16/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No. 10/583,960	Applicant(s) POSTOACA, ION	
	Examiner Frederick J. Parker	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8-3-09 has been entered.
2. The prior art rejections of the previous Office Action are withdrawn in view of amendment. Hence response to arguments is moot.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 14-17,25 are rejected under 35 U.S.C. 102(b) as being anticipated by MacKenzie US 5503872.

The apparatus of MacKenzie for coating a substrate with polymeric material comprises a fluidized bed 48 for suspending and mixing powdered polymer in a fluid ; pressurizing pump 42 to operatively transport the suspended polymer to the nozzle of gun 32 for ejection of the polymer; heating equipment in chamber 10 operatively connected to heat the polymer by

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ejecting heat from outlet 34; wherein the fluidized bed which suspends and fluidizes/ mixes the powder is before both the pressure equipment (pump) and nozzle. Since the heat of the apparatus can reach a fusion temperature, it is inherently capable of achieving temperatures below a melting point of a given powder. Thus the reference anticipates claim 14. Figure 1 and associated text.

Per claim 15, figure 1 and associated text describes one remote heating equipment with means 28, 30 arranged upstream thereof to heat the polymeric powder.

Per claim 16, pump 42 causes the suspended powder to be withdrawn and transported at a desired rate for coating (col. 3, 36-40).

Per claim 25, it is inherent the heat activates the surface of the particle.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. Claims 1-4,6-8,10-13,18-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacKenzie US 5503872 in view of Singelyn US 5021259.

MacKenzie teaches a method for coating a substrate with thermoplastic polymeric material comprises suspending and mixing powdered polymer in a fluidized bed 48, the fluid being air (claim 18); using a pressurizing pump 42 to operatively transport the suspended polymer to the nozzle of gun 32 for ejection of the polymer; heating the polymer by ejecting heat from outlet 34 corrected to heating equipment in chamber 10 ; wherein the fluidized bed which suspends and fluidizes/ mixes the powder is before both the pressure equipment (pump) and nozzle. Since polymers possess a softening and melting temperature, the limitation of claim 1a and 28a is met. The pressure of the pump is not cited per claim 27; however since both MacKenzie and Applicants (Specification page 3, 27-29) use pumps for identical reasons, it would have been expected that pressure would have been similar. The method teaches heating to reach a fusion temperature of the polymer rather than a temperature between the softening temperature and the melting point.

Singelyn teaches a similar thermal spray method of applying thermoplastic polymers entrained in an inert gas stream (col. 3, 44-55 and elsewhere; per claim 18), in which guidance is provided (col. 3, 18-55) for applying the particles such that particles **soften without melting or decomposition** so they adhere to the substrate per claim 1. Such temperatures are at least suggested by MacKenzie col. 1, 65-67. The thermal spray gun comprises a heating means having a flame sufficient to cause softening of the polymer (hence polymers inherently possess softening temperature) during ejection of the particles suspended in the gas (a fluid, per Applicants' claim 3 and same as MacKenzie). Therefore the gas-polymer suspension is heated

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during ejection, which is before Applicants step d), per claims 2 & 6. The thermoplastic polymers on col. 2, 42-52 inherently possess melting points, and accordingly the Examiner takes Official Notice that the melting points of Nylon/polyamide and polystyrene are, by way of example, 365-420F and 240C, respectively. The applied porous coating may then be heated in an oven below the polymer decomposition temperature until a dense impermeable film is formed (col. 4, 22-42), which also meets claim 1d. Coatings formed are homogenously pinhole free and continuous per claim 26.

Singelyn also teaches to pretreat the substrate per claim 10 by applying a tie coat (primer) to the substrate to improve adhesion of the subsequently applied polymer coating, necessarily pretreating/ activating the substrate using suitable means to prevent the coating from sloughing off at elevated temperatures.

Per claim 4, the powder fed to the flame would have inherently resulted in evaporation of adhered volatiles/ moisture during heating.

Per claims 12-13,26; coating design is not limited and both references would have encompassed the continuous or selective coatings of the claims. Homogeneity of the final coating layer is homogeneous as evident from col. 4, 39-41 of Singelyn.

Singelyn exemplifies polymer particle sizes between about 1-20 microns, which overlaps the ranges of Applicants claims 7, 20, and 21. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made if the overlapping portion of the particle sizes disclosed by the reference were selected because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Wortheim* 191 USPQ 90. The particles are necessarily manufactured.

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Col. 3, 30-36 provides guidance as to adjusting parameters of the spray gun to prevent coalescence (synonymous with “agglomeration” per claims 8,22) of particles to form a non-porous coating upon impact; adjustment of spray gun parameters is cited to be within the skill of those practicing in the art, and hence the pressures of claim 27 are merely optimization of obvious spray gun parameters.

Applied coating thicknesses are approximately 1-25 mils (= 25-630 microns) which is larger than that of Applicants but given the overlap of particle sizes, it would have been apparent that the formation of thinner coatings for a specific end-use applications would have been feasible and obvious based upon end-use considerations to the skilled artisan; thus the thicknesses of claims 11,23,24 would not patentably distinguish over the prior art.

Per claim 19, modification of the apparatus to provide heating closer to where the powder is entrained in the gaseous fluid would have been an obvious design choice to provide equivalent particle heating means to effect the requisite softening.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Singelyn and to utilize overlapping particle sizes, coating designs, adjustment and optimization of spray gun parameters, etc because such variations would have been obvious and within the purview of one skilled in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of MacKenzie using the heating temperature regimes and powder/process details of the similar process of Singelyn because of the expectation of achieving a pinhole free thermoplastic polymer coating.

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8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over MacKenzie in view of Singelyn, cited for the same reasons previously discussed, which are incorporated herein, and further in view of Deshpande et al US 2003/0215644.

Use of the process for packaging applications is not cited in the prior art references, although the formation of dense impenetrable films is a goal of the process of both. However, Deshpande teaches the concept of thermally spraying thin films of thermoplastic polymeric material onto substrates including metals to provide a wide range of laminate products including food and beverage packaging which provide barriers to moisture and gases [0101,0105, and elsewhere]. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of MacKenzie in view of Singelyn to form packaging materials having gas/liquid barrier properties given the concept disclosed by Deshpande because of the expectation of forming impenetrable thermoplastic layers in the laminate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frederick J. Parker
Primary Examiner
Art Unit 1792

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Primary Examiner, Art Unit 1792